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EXAMINER

SMARTH, GERALD A

ART UNIT	PAPER NUMBER
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2146

NOTIFICATION DATE	DELIVERY MODE
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05/27/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.		Applicant(s)	
	10/620,772		RICHARD ET AL.	
	Examiner		Art Unit	
	GERALD SMARTH		2146	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18 and 20-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 20-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. It is hereby acknowledged that the following papers have been received and placed of record in the file: Remark date 2/27/2008.

2. Claims 1-27 are presented for examination. Claims 1, 8, and 18 are independent claims. The remaining claims are dependent claims. Claims 1, 5, 7-10, 18, 20 and 21 have been amended. Claims 17 and 19 have been cancelled.

3. The Rejections are respectfully maintained and reproduced infra for application's convenience.

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 18, 25-27 uses the phrase "distributed file system", which is not explicitly disclosed in the specifications. It is unclear what this system is being defined as, and can be interpreted as software pro se, which is considered to be non-statutory.

Claim 20, uses the phrase "machine readable medium", which is not explicitly disclosed in the specifications. It is unclear what the machine readable medium is being defined as, and can be interpreted as non-functional matter.

Appropriate corrections are required.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 18, 25-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed towards software, which per se is non-statutory.

The claims 18, 25-27 use the phrase "distributed file system", which does not include any hardware components. The phrase "distributed file system for" can be interpreted as software per se. This is considered to be directed to software per se which lacks structural and functional relationship. Thus is considered to be non-statutory.

Claim 20, under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim can be directed towards non-functional subject matter.

Claim 20, uses the phrase “machine readable medium”, which does not include any hardware components. This can be considered to be directed towards energy per se, which lacks structural and functional relationship. Thus is considered to be non-statutory.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howard (6098079) in view of Chao (US 2001/037398).

Regarding claim 1, Howard teaches a method of distributing files between computing devices of at least one group of computing devices including the steps of automatically performing a file reconciliation routine in response to the networking of at least two of said computing devices in the same network being performed, ***(Howard discloses the present invention is related generally to the field of distributed file systems for computers, and more specifically to the reconciliation of different versions of files that may exist at different storage locations within a distributed computer system; Column 1 line 14-18)*** and then periodically, of said at least two of

said computing devices while said at least two of said computing devices are networked to each other in the same network.

Howard does not specifically teach in response to the networking of at least two of said computing devices in the same network being performed.

However Chao does teach in response to the networking of at least two of said computing devices in the same network being performed. **(Chao discloses *still another particular object is to enable sliding window acknowledgment through the hub on a broadcast to nodes in the network architecture.* yet another object of the present invention is to enable spokes to issue periodic acknowledgments to the central hub, and for the central hub to issue periodic acknowledgments to the originating spokes, wherein such acknowledgments effectively indicate the vitality of the nodes within the system as well as any need for packet retransmission; Page 2 paragraph 18 &19)**

Howard and Chao are from the same field of endeavor, remote file updating.

It would be obvious to a person of ordinary skill in the art at the time of the invention to modify Howard's File version reconciliation using hash codes with Chao's replicating data in a distributed computer environment. One of ordinary skill in the art would have been motivated to make this modification in order to have a more efficient and reliable file reconciliation system. Using Chao's system allows for less of a burden on users. *Chao's discloses other known techniques (e.g., Microsoft Exchange.RTM.) provides a simple, first generation messaging-based replication scheme. This technique relies on store-and-forward mail to push changes from one server to other*

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defined replicas on other servers. There is no comparison operation, however, to guarantee that replicas remain synchronized. Such a system significantly increases administrative and end-user burden. Moreover, if a user changes even a single property or field of a document, the entire document must be replicated rather than just the property or field. Netscape Suitespot.RTM. uses proxy servers for locally caching Web pages, which reduces network bandwidth requirements; Page 1 paragraph 11 lines 1-13.

Therefore, it would be obvious to combine Howard and Chao to arrive to the limitations of claim 1.

Regarding claim 2, Howard in view of Chao taught a method according to claim 1, as described above. Further Howard teaches the step of controlling at least one of said computing devices to transmit file reconciliation data periodically irrespective of its or their connectivity to other computing devices. **(Howard discloses thus periodically the user files and directories at the two sites are reconciled with each other so that both sites have the latest copies of the files and directories; Column 4 line 43-46)**

Regarding claim 3, Howard in view of Chao taught a method according to claim 1, as described above. Howard further teaches wherein said computing devices include at least one shared files directory, and further including automatically storing shared files in the at least one shared files directory. **(Howard discloses a file**

reconciliation technique is described that uses a combination of automatic mechanisms and user control the reconciliation technique uses a set of journal files in which the history of file creation, modification, and deletion throughout the system is recorded, each journal file maintaining the portion of the history involving a particular site, or storage location. As used therein, the term "site" refers to a working directory and its sub-directories on a particular storage medium, such as a hard disk or floppy disk; Column 2 line 47-55)

Regarding claim 4, Howard in view of Chao taught a method according to claim 3, as described above. Further Howard teaches wherein the at least one shared files directory is directly accessible by software application stored in the computing devices and further including directly accessing the at least one shared files directory of the software applications stored in the computing devices. ***(Howard discloses the process uses site directories and version entries in the journal files to determine whether there is a single current version of each file or directory, and if so copies that version to the other sites involved in the reconciliation; column 2 line 59-63)***

Regarding claim 5, Howard in view of Chao taught a method according to claim 1, as described above. Further Howard teaches including the step of distributing all shared files amongst all computing devices ***(Chao, fig.1)*** networked together. ***(Howard discloses in systems using these techniques, file updates are broadcast to all***

storage locations immediately, and in some cases the use of a file being updated is prevented until all copies have been updated; Column 2 line 1-5)

Regarding claim 6, Howard in view of view of Chao taught a method according to claim 1, as described above. Howard further teaches wherein all distributed files can be read from and written to in any of said computing devices and further including reading from and writing all distributed files in any of said computing devices. ***(Howard discloses for example, the reconciliation process could be run as an independent process on each computer, and a signaling and file-exchange protocol used between the independent processes to carry out the reading and writing of directory, data and journal files; Column 13 line 5-9)***

Regarding claim 7, Howard taught a method according to claim 1, as described above. Further Howard teaches including the steps of issuing file data to all computing devices(Chao, fig.1) that are connected to each other within the group without specifying computing devices in the group to which the issued file data are issued. ***(Howard discloses in systems using these techniques, file updates are broadcast to all storage locations immediately, and in some cases the use of a file being updated is prevented until all copies have been updated; Column 2 line 1-5)***

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Regarding claim 8, Howard teaches a method of distributing files between computing devices of at least one group of computing devices that are connected to each other in a network, the method including the steps of issuing file data to all computing devices computers within the group without specifying the computing devices(Chao, fig.1) in the group to which the file issue data are issued and receiving file data from all computing devices unspecified all computers within the group without specifying the computing devices in the group that are receiving the received file data. ***(Howard discloses in systems using these techniques, file updates are broadcast to all storage locations immediately, and in some cases the use of a file being updated is prevented until all copies have been updated; Column 2 line 1-5)***

Howard does not specifically teach receiving file data from all computing devices unspecified all computers within the group without specifying the computing devices in the group that are receiving the received file data.

However Chao does teach receiving file data from all computing devices unspecified all computers within the group without specifying the computing devices in the group that are receiving the received file data. ***(Chao discloses upon designation of the new hub 10', updates not yet acknowledged from all spoke nodes in the distribution group are then retransmitted to the new hub as illustrated by reference numeral 27. New hub 10' may or may not have been a spoke node, as the actual hub need not be a physical device. The hub process may coexist with the server processes on any node or reside on some other system. In this hub recovery operation, each node retransmits to the new hub***

every update for which the failed hub has not indicated successful receipt by every node in the distribution group; Page 4 paragraph 54 lines 5-16)

Howard and Chao are from the same field of endeavor, remote file updating.

It would be obvious to a person of ordinary skill in the art at the time of the invention to modify Howard's File version reconciliation using hash codes with Chao's replicating data in a distributed computer environment. One of ordinary skill in the art would have been motivated to make this modification in order to have a more efficient and reliable file reconciliation system. Using Chao's system allows for less of a burden on users. *Chao's discloses other known techniques (e.g., Microsoft Exchange.RTM.) provides a simple, first generation messaging-based replication scheme. This technique relies on store-and-forward mail to push changes from one server to other defined replicas on other servers. There is no comparison operation, however, to guarantee that replicas remain synchronized. Such a system significantly increases administrative and end-user burden. Moreover, if a user changes even a single property or field of a document, the entire document must be replicated rather than just the property or field. Netscape Suitespot.RTM. uses proxy servers for locally caching Web pages, which reduces network bandwidth requirements; Page 1 paragraph 11 lines 1-13.*

Therefore, it would be obvious to combine Howard and Chao to arrive to the limitations of claim 8.

Regarding claim 9, Howard in view of Chao taught a method according to claim 8, as described above. Further Chao teaches including the step of accepting a computer as a computer of said at least one group on the basis of group identification data specific to the group or specific to the device. ***(Chao discloses at step 62, assuming one or more updates have been received, the hub packages them for transmission. At step 64, and in connection therewith, the hub affixes to each package a hub identifier (ID), a hub sequence number, the originating node identifier, the originating node sequence number (associated with the package in which the update was received), and a destination group identifier identifying which nodes actually contain the data set being updated; Page 5 paragraph 60 lines 22-30)***

Regarding claim 10, Howard in view of Chao taught a method according to claim 8, as described above. Further Howard teaches including the step of transmitting a journal of file history for each shared file from one computer into the network. ***(Howard discloses the reconciliation technique uses a set of journal files in which the history of file creation, modification, and deletion throughout the system is recorded, each journal file maintaining the portion of the history involving a particular site, or storage location; column 2 line 47-52)***

Regarding claim 11, Howard in view of Chao taught a method according to claim 10, as described above. Howard further teaches including the step of [a] one of the computing devices requesting only file versions not stored therein. ***(Howard discloses***

during reconciliation, sequences of version entries associated with each file in each journal are updated and compared to determine whether (1) a conflict exists for any of the files involved in the reconciliation, and (2) if not, which version of the file is the current version; Abstract)

Regarding claim 12, Howard in view of Chao taught a method according to claim 10, as described above. Further Howard teaches wherein a file journal includes a code indicative of the contents of each file version in the journal; and further including transmitting the code without transmitting the entire journal. ***(Howard discloses the hash code or digest is computed from the contents of the file according to a known message digest program such that to a very high probability the code uniquely identifies the contents of the file from which it is generated; Column 3 line 41-44)***

Regarding claim 13, Howard in view of Chao taught a method according to claim 8, as described above. Howard further teaches including the step of dividing files into a plurality of portions for data transfer. ***(Howard discloses it should be noted here that the assignment of mask bits to sites is meaningful only within a particular journal. When journals are merged as described above, the mask bits in both the Site and the Version entries are re-mapped appropriately to maintain the associations between versions and sites; Column 6 line 39-44)***

Regarding claim 14, Howard in view of Chao taught a method according to claim 13, as described above. Howard further teaches wherein each file portion includes a contents code, the method including the step of transmitting only those file portions which have been modified. ***(Howard discloses it should be noted here that the assignment of mask bits to sites is meaningful only within a particular journal. When journals are merged as described above, the mask bits in both the Site and the Version entries are re-mapped appropriately to maintain the associations between versions and sites; Column 6 line 39-44)***

Regarding claim 15, Howard in view of Chao taught a method according to claim 13, as described above. Further Howard teaches including the step of providing in each computing device an accessible list of file portions stored therein and the step of determining whether a required file portion is stored therein from the list of accessible file portions. ***(Howard discloses the master list also contains the mask bits to be used in the new journals, and a date and time of the last known reconciliation for each site; Column 6 line 26-29)***

Regarding claim 16, Howard in view of Chao taught a method according to claim 8, as described above. Further Howard teaches including the step of storing file versions in a format in which they can be read from and written to. ***(Howard discloses***

for example, the reconciliation process could be run as an independent process on each computer, and a signaling and file-exchange protocol used between the independent processes to carry out the reading and writing of directory, data and journal files. Column 13 line 5-9)

Claim 17, cancelled.

Regarding claim 18, Howard teaches a distributed file system for distributing files between computing devices of at least one group of computing devices that are connected to each other in a network, the system including a transmission unit operable to issue file data to all computing devices(Chao, fig.1) (***Howard discloses thus the file server must be involved in all file reconciliation; Column 2 line 16-17)*** within the group without specifying the computing devices in the group to which the issue file data are issued, and a receiving unit operable to receive file data from all computing devices within the group without specifying the computing devices in the group that are receiving the receiving the received file data.

Howard doesn't specifically teach within the group without specifying the computing devices in the group to which the issue file data are issued, and a receiving unit operable to receive file data from all computing devices within the group without specifying the computing devices in the group that are receiving the receiving the received file data.

However Chao teaches within the group without specifying the computing devices in the group to which the issue file data are issued, and a receiving unit operable to receive file data from all computing devices within the group without specifying the computing devices in the group that are receiving the received file data. ***(Chao discloses upon designation of the new hub 10', updates not yet acknowledged from all spoke nodes in the distribution group are then retransmitted to the new hub as illustrated by reference numeral 27. New hub 10' may or may not have been a spoke node, as the actual hub need not be a physical device. The hub process may coexist with the server processes on any node or reside on some other system. In this hub recovery operation, each node retransmits to the new hub every update for which the failed hub has not indicated successful receipt by every node in the distribution group; Page 4 paragraph 54 lines 5-16)***

Howard and Chao are from the same field of endeavor, remote file updating.

It would be obvious to a person of ordinary skill in the art at the time of the invention to modify Howard's File version reconciliation using hash codes with Chao's replicating data in a distributed computer environment. One of ordinary skill in the art would have been motivated to make this modification in order to have a more efficient and reliable file reconciliation system. Using Chao's system allows for less of a burden on users. *Chao's discloses other known techniques (e.g., Microsoft Exchange.RTM.) provides a simple, first generation messaging-based replication scheme. This technique relies on store-and-forward mail to push changes from one*

server to other defined replicas on other servers. There is no comparison operation, however, to guarantee that replicas remain synchronized. Such a system significantly increases administrative and end-user burden. Moreover, if a user changes even a single property or field of a document, the entire document must be replicated rather than just the property or field. Netscape Suitespot.RTM. uses proxy servers for locally caching Web pages, which reduces network bandwidth requirements; Page 1 paragraph 11 lines 1-13.

Therefore, it would be obvious to combine Howard and Chao to arrive to the limitations of claim 18.

Claim 19, cancelled.

Regarding claim 20, Howard in view of Chao teaches a memory or machine readable medium carrying a program for causing a computer arrangement to distribute software application files stored on or in a memory device, which memory or medium when operated on the computer arrangement causes the computer arrangement to perform the method according to claim 1, as described above. ***(Howard discloses an improved method of reconciling different file storage sites in a distributed file system is disclosed. A set of journal or log files is used to track the history of file modification at each of the different sites. The journal files contain sequences of version entries associated with each file at the corresponding site. Each version***

entry contains a hash code or digest that to a very high probability uniquely identifies the contents of a corresponding version of the file; column 3 line 25-33)

Regarding claim 21, Howard in view of Chao teaches a method according to claim 1, as described above. Howard also teaches including the step of transmitting a journal of file history for each shared file from one computer into the network. ***(Howard discloses file reconciliation process in a distributed file system uses a set of journal or log files to track the history of file modification at each of different sites, or sets of directories, in a computer system; Abstract line 1-3).***

Regarding claim 22, Howard in view of Chao taught a method according to claim 1, as described above. Howard also teaches including the step of dividing files into a plurality of portions for data transfer. ***(Howard discloses it should be noted here that the assignment of mask bits to sites is meaningful only within a particular journal. When journals are merged as described above, the mask bits in both the Site and the Version entries are re-mapped appropriately to maintain the associations between versions and sites; Column 6 line 39-44)***

Regarding claim 23, Howard in view of Chao taught a method according to claim 1, as described above. Howard further teaches including the step of storing file versions in a format in which they can be read from and written to. ***(Howard discloses***

for example, the reconciliation process could be run as an independent process on each computer, and a signalling and file-exchange protocol used between the independent processes to carry out the reading and writing of directory, data and journal files. Column 13 line 5-9)

Regarding claim 24, Howard in view of Chao teaches a software application for distributing files stored on or in a memory device, which software application is operable to perform the method according to claim 8, which was taught above. (***Howard discloses an improved method of reconciling different file storage sites in a distributed file system is disclosed. A set of journal or log files is used to track the history of file modification at each of the different sites. The journal files contain sequences of version entries associated with each file at the corresponding site. Each version entry contains a hash code or digest that to a very high probability uniquely identifies the contents of a corresponding version of the file; column 3 line 25-33)***)

Regarding claim 25, Howard teaches a computer network including a distributed file system according to claim 18, which Carter taught above. (***Howard discloses an improved method of reconciling different file storage sites in a distributed file system is disclosed. A set of journal or log files is used to track the history of file modification at each of the different sites. The journal files contain sequences of***

version entries associated with each file at the corresponding site. Each version entry contains a hash code or digest that to a very high probability uniquely identifies the contents of a corresponding version of the file; column 3 line 25-33)

Regarding claim 26, Howard in view of Chao taught a computer network including a distributed file system operable by a method of distributing files according to claim 1, which was taught by Howard previously described above. ***(Howard discloses file reconciliation process in a distributed file system uses a set of journal or log files to track the history of file modification at each of different sites, or sets of directories, in a computer system; Abstract line 1-3).***

Regarding claim 27, Howard in view of Chao teaches a computer network including a distributed file system operable by a method of distributing files according to claim 8, as described above. ***(Howard discloses file reconciliation process in a distributed file system uses a set of journal or log files to track the history of file modification at each of different sites, or sets of directories, in a computer system; Abstract line 1-3).***

Response to Argument

Applicant's arguments with respect to claims 1-16, 18, 20-27 have been considered but are moot in view of new ground(s) or rejection.

Applicant amendments for claims 1, 5, 7-10, 18, 21 are unpatentable over Howard in view of Choe,

Regarding claim 10, applicant makes argument that Howard does not teach a journal of file history is being transmitted. Examiner respectfully disagrees, and believes the reconciliation technique uses a set of journal files in which the history of file creation, modification, and deletion throughout the system is recorded, each journal file maintaining the portion of the history involving a particular site, implies a journal of file history is being transmitted.

Regarding claim 11, applicant makes argument that Howard does not teach computing device requests only file versions not stored therein. Examiner respectfully disagrees and believes the way the claim is stated does not specify where the file versions are not stored, thus Howard's statement reads on claim limitation.

Regarding claim 12, applicant makes argument Howard does not mean a code is transmitted with out transmitting the entire journal. Examiner respectfully disagrees, applicant does not specify what type of code, thus Howard reads on claim limitation.

Conclusion

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8. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See MPEP 707.05 ©.

9. The following reference teaches execution of trial data.

US 20030061333

US 20030204599

US 20030207696

US 20040019668

US 6822960

The examiner requests, in response to this Office action, support be shown for language added to any original claims on amendment and any new claim. That is indicated support for newly added claim language by specifically pointing to page(s) and line no(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gerald Smarth whose telephone number is (571)270-1923. The examiner can normally be reached on Monday-Friday(7:30am-5:00pm)est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Pwu can be reached on (571)272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. S./

Examiner, Art Unit 2146

/Jeffrey Pwu/

Supervisory Patent Examiner, Art Unit 2146